

DOCUMENT RESUME

ED 380 096

IR 017 017

AUTHOR Rezabeck, Landra L.; Cochenour, John J.
TITLE Emoticons: Visual Cues for Computer-Mediated Communication.
PUB DATE [95]
NOTE 14p.; In: Imagery and Visual Literacy: Selected Readings from the Annual Conference of the International Visual Literacy Association (26th, Tempe, Arizona, October 12-16, 1994); see IR 016 977.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Mediated Communication; Creativity; *Electronic Mail; Electronic Text; Information Networks; *Visual Aids
IDENTIFIERS *Emotional Expression; *Iconic Representation; Listservs; Visual Cues

ABSTRACT

Emoticons are visual cues formed from ordinary typographical symbols that when read sideways represent feelings or emotions. Because the use of electronic mail eliminates the visual cues such as head nodding, facial expressions, posture, and eye contact found in face-to-face conversation, electronic mail users often incorporate emoticons as visual cues to augment the meaning of textual messages. The goals of this paper are to: (1) discuss the utility of emoticons as visual cues from the perspective of traditional communication models; and (2) present and discuss research regarding the frequency and variety of emoticons in selected computer-mediated communication. The use of emoticons does not appear to be a high-use element of electronic mail communications, and high frequency emoticons are most likely the ones best understood, hence variety may be limited. Individual preference and creativity appear to influence the development of new emoticons, emoticon use, and the context within which they are interpreted. Factors which appear to influence emoticon use are: (1) level of communication formality; (2) cohesion of the communication group; (3) age; (4) gender; (5) difficulty of icon reproduction; (6) commonality of meaning; and (7) personal preference and experience. Eight figures illustrate data findings. (Contains nine references.) (MAS)

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Emoticons: Visual Cues for Computer-Mediated Communication

Landra L. Rezabek
John J. Cochenour

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Introduction

Emoticons are visual cues formed from ordinary typographical symbols that when read sideways represent feelings or emotions. For example, the combination of symbols :-) represents a typical smiley face and conveys the sentiment that the person sending the message and using that particular emoticon is pleased, happy, agreeable or in a similar state of mind.

Emoticons have received attention in the popular press in association with computer-mediated communication (*400 Readers*, 1994; McNichol, 1994; Sanderson, 1992). Though computer-mediated communication (CMC) can be much more involved than the mere sending and receiving of messages, CMC is commonly referred to as electronic mail or *e-mail*. Because the use of e-mail eliminates visual cues such as head nodding, facial expressions, posture, and eye contact found in face-to-face communication, CMC users often incorporate emoticons as visual cues to augment the meaning of textual electronic messages.

The goals of this paper are to: 1) discuss the utility of emoticons as visual cues from the perspective of traditional com-

munication models, and 2) present and discuss research regarding the frequency and variety of emoticons in selected computer-mediated communication.

Background and Rationale

Determining the meaning of any given communication can be an elusive endeavor. Effective communication is not simply a matter of analyzing individual word denotations and connotations, it is a blend of many factors. Words, grammar and structure, context and experience, nonverbal signals, and other cues all contribute to meaning in a message. During interpersonal interactions, face-to-face nonverbal cues constitute a significant part of a communication's meaning and believability. For example, visual cues such as body language, facial expression, eye contact, and posture provide important clues to the subtle and often not-so-subtle meaning of verbal messages. People read visual cues to ascertain if their perceptions of verbal messages are correct. In training and instruction, a time-honored rationale for the use of visuals to support communication is that visuals can clarify, augment, and reiterate verbal messages. The old adage, "a picture is worth a thousand words" suggests this

capability of visuals to communicate volumes in just one image.

Emoticons can provide support to written communication, in much the same way that visuals or body language can enhance verbal communication. Facial expressions are especially important in conveying emotions and nuances of meaning during face-to-face interactions, and emoticons are a means for better defining emotions and intent regarding a particular phrase or statement sent via electronic mail. Though the medium of electronic mail relies heavily upon text-based verbal messages to accomplish the task of interpersonal communication, by integrating emoticons into communication an alternative for facial cues found in face-to-face contexts is provided. For example, the joke, wry remark, or bit of wit sent over e-mail can be followed by the visual cue ;-) to emphasize the jesting nature of the comment. A sad statement can be emphasized by a sad icon :-(or an exclamation can be stressed by a surprised emoticon <:-0 .

Although the use of emoticons theoretically can assist in clarifying the exact meaning of an electronic message, little seems to be known about the frequency of their use, the interpretations and recognition of the various symbols, and the appropriateness and integration of these visual cues in electronic communication. The authors embarked on this study primarily to explore the use of emoticons in CMC. Specifically, this study is a preliminary investigation designed to provide seminal information regarding the following questions:

1) With what frequency do emoticons appear in selected examples of electronic communication?

2) What variety of emoticons appear in these same CMC data sources?

3) What usage patterns begin to emerge regarding the use of emoticons as visual cues?

4) What factors may influence the use of emoticons used in electronic communication?

Data Collection and Analysis Procedures

Four listservs were selected as sources of data for this study. The first, *Gloaled '93*, was a closed listserv established for an interinstitutional collaborative university course project described in more detail below. The AECT-L (Association for Educational Communications and Technology Listserv) is a service of the professional organization, The Association for Educational Communications and Technology, with which the authors and other members of the International Visual Literacy Association are affiliated. The SEMOIS-L (Semiotics) listserv was chosen from the listservs published in *The Internet Directory* (Braun, 1994). This listserv was selected because 1) the study of emoticons can be considered a semiotic investigation, 2) the archives are available and accessible to the public, and 3) the study of semiotics relates to visual literacy and reflects the professional interests of the authors. The final listserv, TRDEV-L (Training and Development discussions) was chosen from many listed in the *Directory of Scholarly Electronic Conferences* (Kovacs, 1994). The TRDEV-L discussion list focuses on the field of training and development is therefore tangentially related to the application

of learning theory and the use of visuals in instructional contexts.

Archival transcripts of each listserv, downloaded from electronic Internet sources, were analyzed for the use of emoticons. The decisions affecting the choice of months during which the CMC interactions on each listserv were monitored and additional listserv-specific information are discussed in the sections dealing with each of the individual listservs. Total messages, messages containing emoticons, the type of emoticon used, and the person who generated the emoticon were tallied by the authors during the data collection procedures. Results emerging from each listserv are discussed below.

Results from Selected Listservs

Globaled '93

General Description of the List

Globaled '93, an inter-university collaborative learning experience, linked graduate students in several universities via a computer-mediated listserv. The goals of the electronic discussion forum were to provide students opportunities to 1) discuss issues related to the field of distance education and 2) experience distance learning by using computer-mediated communication. Though participation in the electronic forum was a class requirement at the institutions involved, the *Globaled '93* conference provided an opportunity for students working together across barriers of time and distance to exercise control, autonomy, and responsibility for the direction, content, and success of the CMC experience. Further elaboration on the *Globaled '93* project

is found in Gunawardena, et al. (1994) and Rezabek, et al. (1994).

During the month of September, *Globaled '93* participants posted initial introductions of themselves as part of the pre-class activities. These introductions were not analyzed in the current study since they were not considered a part of the structured *Globaled '93* interactions and were not archived. All interactions during the months of October, November, and December, the three months in which *Globaled '93* participants communicated via CMC after posting the initial introductions, were analyzed for the participants' use of emoticons.

The use of emoticons occurring naturally was observed by the authors who participated as faculty in the *Globaled '93* project. On November 28, the authors sent a message to all *Globaled '93* participants that presented the concept and examples of emoticon use and supplied a brief dictionary of emoticons. No other interventions were made to the natural progress of the CMC interaction.

Frequency of Messages and Emoticons

During the month of October, 349 messages were posted on the *Globaled '93* listserv, and 8 of these (2.29%) contained at least one emoticon (see Figure 1). Of the eight messages containing emoticons, only one message contained two emoticons and no message contained more than two of these visual cues.

In November, 396 messages were posted on *Globaled '93* with 25 messages (6.31%) containing emoticons (see Figure 1). Of the 25 messages in which emoticons were used, again only one message incorpo-

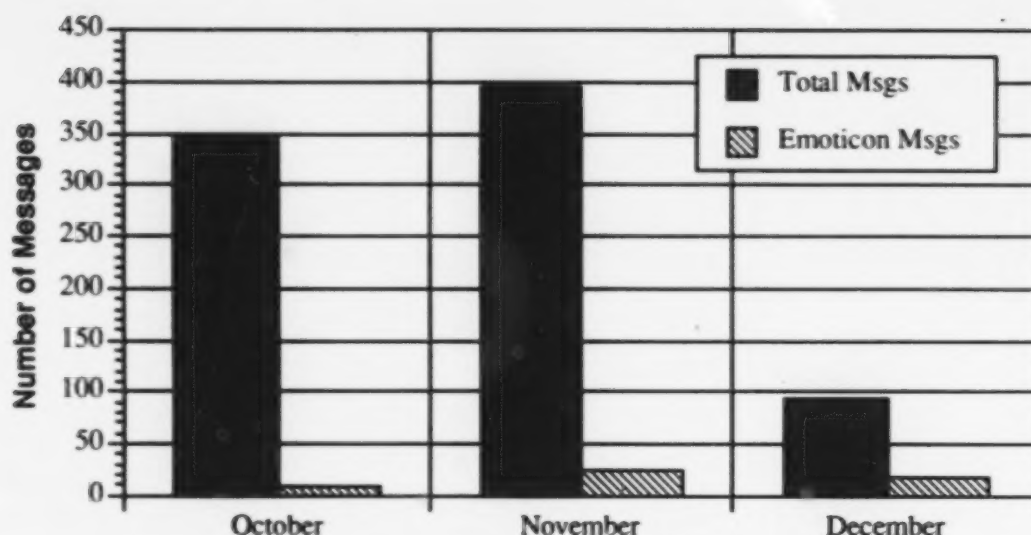


Figure 1: *Globaled '93* message traffic and emoticon frequency by month.

rated two emoticons, and no message included more than two emoticons.

From December 1 through 17 when *Globaled '93* officially ended, 94 messages were sent with 18 messages (19.15%) containing emoticons (see Figure 1). During December, five messages were sent that contained two emoticons but no message contained more than two.

Overall, during the months of October, November, and December, 839 messages were posted with 51 (6.08%) of these

messages containing emoticons (see Figure 2). Seven of these 51 messages contained 2 emoticons but no message contained more than two.

These frequency patterns indicate a percentage increase in the use of emoticons over time, with a specific frequency pattern increase observable after the on-line introduction of emoticons on November 28. Additional frequency patterns emerge from the emoticon data. Figures 3, 4, and 5 display the dates on which messages and messages that contained emoticons were posted during the months of October, November, and December respectively.



Figure 2: Percentage of *Globaled '93* messages that contained an emoticon

During the month of October, the middle of the week was students' favorite time to post messages. The highest average amount of traffic occurred on Wednesdays with over 19 (19.5) messages per day being sent. Wednesday was also the day on which most emoticons were sent, with an average of one emoticon used in a message every Wednesday. The greatest number of messages (30) sent on any one day in October

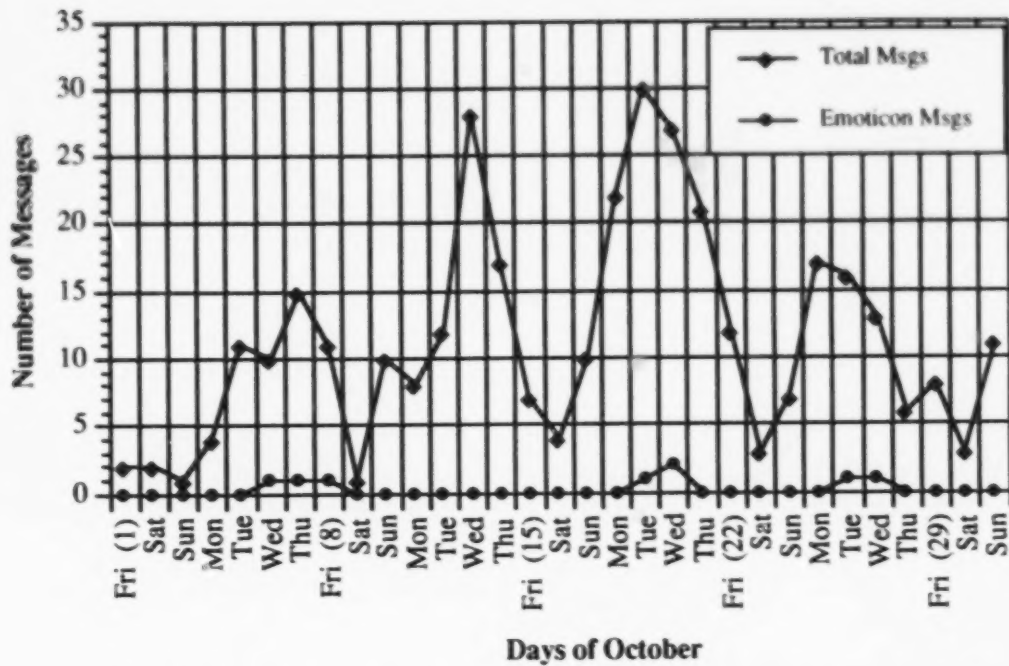


Figure 3: Daily traffic including emoticon messages for October on *Globaled '93*

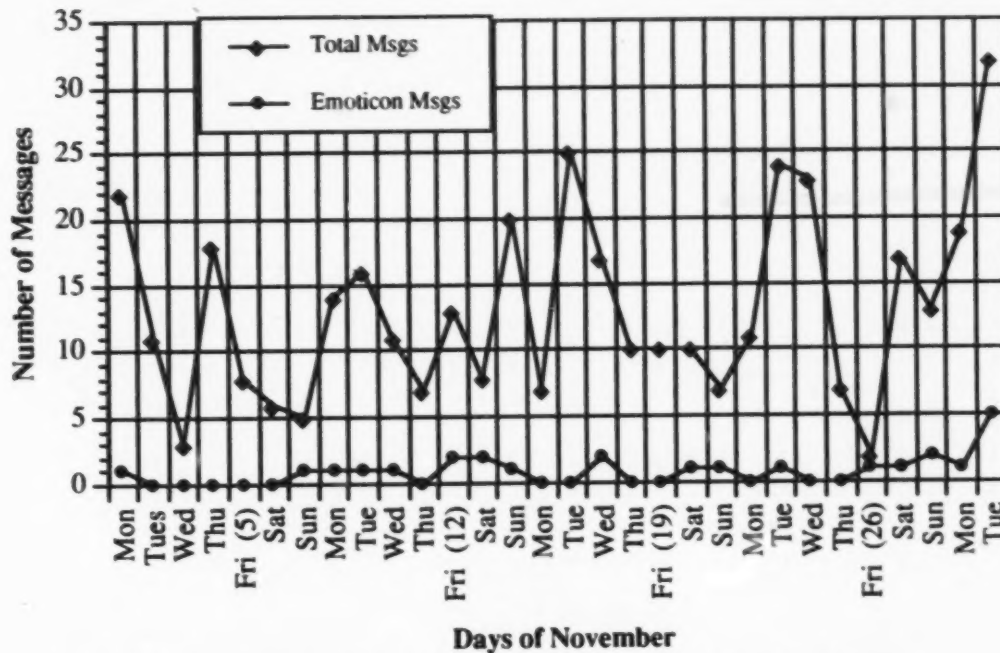


Figure 4: Daily traffic including emoticon messages for November

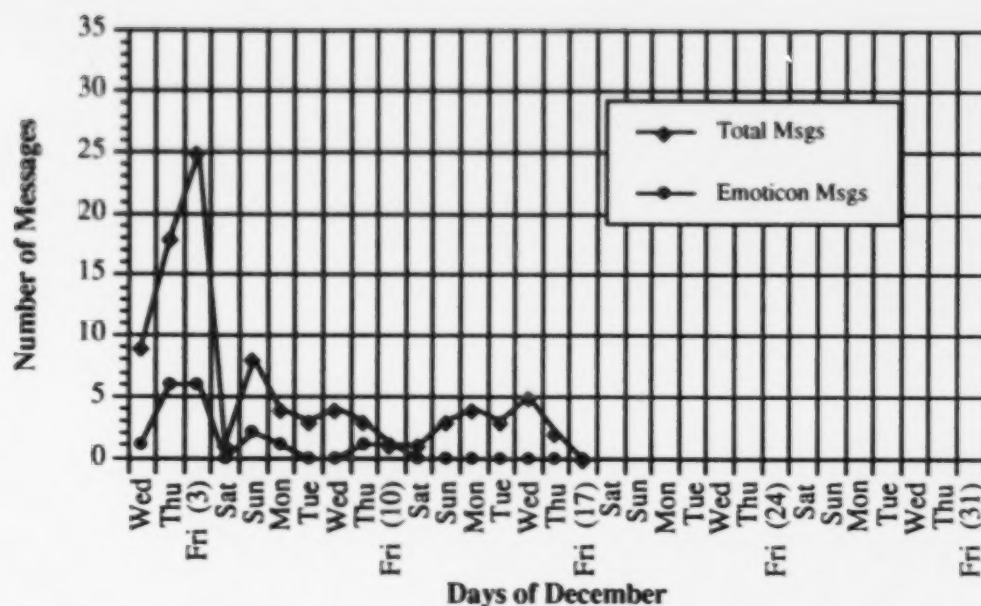


Figure 5: Daily traffic including emoticon messages for December

occurred on Tuesday, October 19th. The greatest number of emoticon messages (2) sent on any one day in October occurred on Wednesday, October 20th. Saturday was the students' least favorite time to post *Globaled '93* messages with fewer than 3 messages sent each Saturday. No emoticons were sent during the weekends in October.

The middle of the week remained students' favorite time to post messages in November. Tuesday had the highest average amount of traffic with almost 22 (21.6) messages sent each Tuesday. Tuesday was also the most frequent day for emoticons to appear in November, with an average of over one (1.4) emoticon message being sent every Tuesday. The greatest number (32) of messages sent on any one day in November occurred on Tuesday, November 30th. The greatest number of emoticon messages (5) sent on any one day in November occurred on that same Tuesday. In November, Fri-

day was students' least favorite time to send e-mail messages, with an average of 8.25 messages sent each Friday. Weekend use of e-mail increased dramatically in November, and emoticons occurred every day of the week except Thursdays. No emoticon messages were sent on a Thursday during November. During the Thursday/Friday period of the Thanksgiving holiday, only 9 messages sent and only one of those contained an emoticon.

December 17 was the date on which the *Globaled '93* discussion list was closed down, and traffic began to taper off as the semester came to an end. The most popular day for students to post messages was on Fridays with an average of 8.67 messages sent. The greatest number (25) of messages sent during one day occurred on Friday, December 3. December messages averaged over 1 emoticon message per day (1.06) with 6 emoticon messages sent on

both Thursday, December 2 and Friday, December 3. Messages occurred fairly evenly over the days of the week, but Saturday again emerged as the least active day with an average of only one message sent each Saturday and no emoticon messages occurring.

Variety

In addition to frequency patterns, the type and variety of emoticons were analyzed (see Figure 6). The most frequently occurring emoticon was a traditional smiley face, :-), that occurred 23 of the 58 times (39.66%) when emoticons appeared in the interactions. The second most frequently occurring emoticon, a smiley face without a nose, :) , occurred eight times and represented 13.80% of the emoticon use. The wry or winking emoticon, ;-), occurred four times, representing 6.90% of the emoticons used. The emoticons associated with a sad or unhappy message, :(, and a

laughing or exuberant message, :-D , each appeared three times or 5.17% each of the times emoticons appeared. All other emoticons appeared only once or twice in CMC messages and are displayed in Figure 8.

Users

Data indicate that 20 of the 92 (21.74%) *Globaled '93* participants included emoticons in their messages. Figure 7 displays the use of emoticons by university site and shows the number of messages containing emoticons that were generated at each location and the number of people at that location who were responsible for the group totals (each person is represented by a different letter).

Five people at The University of Wisconsin—Madison sent 17 of the 51 messages (33.33%) containing one or two emoticons. The following represents addi-

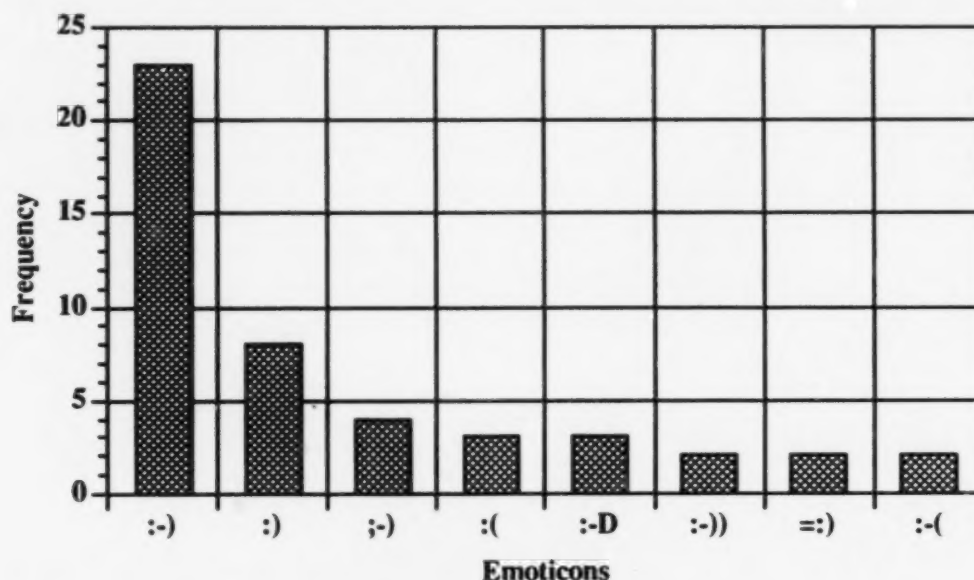


Figure 6: Most frequent emoticons in *Globaled '93*

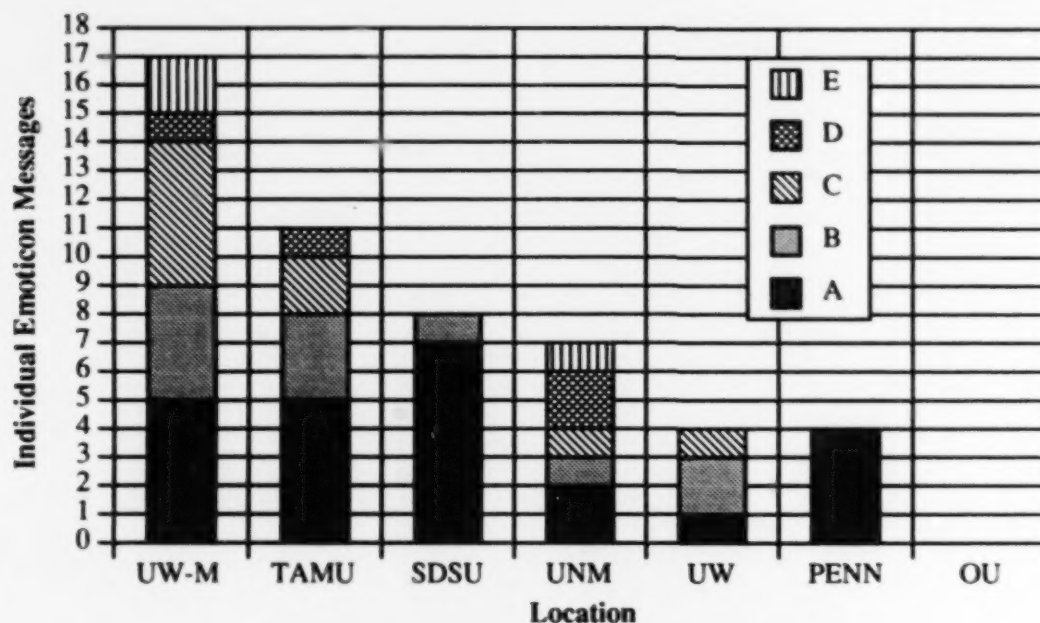


Figure 7: Emoticon users by location in *Globaled '93*

tional institutions, individuals, and emoticons sent: four people enrolled at Texas A & M University (11 messages, 21.57%), two people from San Diego State University (8 messages, 15.69%), five people at the University of New Mexico 7 messages, 13.72%), three people from the University of Wyoming (4 messages, 7.84%) and one person at the Pennsylvania State University (4 messages, 7.84%).

Results from the *Globaled '93* list were the most complete set of data analyzed. As indicated above, however, participation was a required class-related activity. Three voluntary academic discussion lists also were selected and data analysis was conducted for purposes of comparison and contrast. Finally, a brief survey of emoticon use in newsgroups was made, but Spinuzzi's (1992) study has already examined emoticon activity in newsgroups.

AECT-L

General Description of the List

The listserv of the Association for Educational Communications and Technology is a free subscription open list available to those interested in discussing issues dealing with media, technology, educational communications, and associated issues. The listserv began in the spring of 1994 and is moderated from the University of West Virginia. Data for the months of April, May, and June were selected due to their availability and apparent "average" level of interaction.

Frequency, Variety, and Users

Messages from the AECT-L were analyzed for the frequency and variety of emoticons. During April, May, and June, a total of 156 messages were sent with only 2

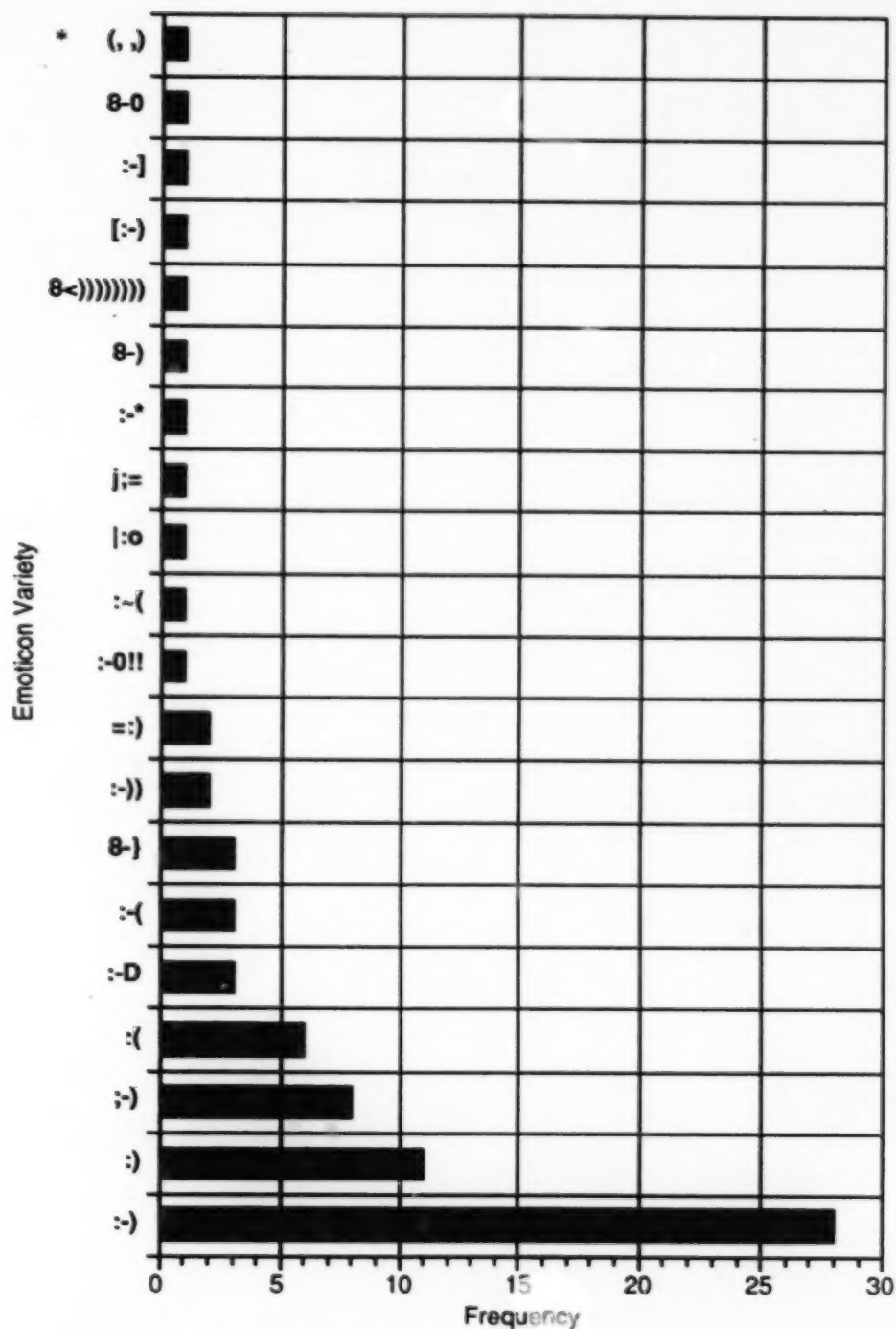


Figure 8: Variety and frequency of emoticons encounter during this study.

* The topmost emoticon was vertical rather than horizontal and should look like

this: (,.)
^

of these messages containing emoticons (1.28%). The monthly totals, for this data were: April—56 messages, 1 emoticon (1.78%); May—42 messages, 1 emoticon (2.38%); and June—58 messages, 0 emoticons (0%).

Two different individuals used emoticons in the AECT-L interactions. The listserv participant who used an emoticon in April sent a smiley face, :) , and the participant who sent an emoticon in May used the smiley with a nose, :-). These two were the only emoticons used during this time period, and informal monitoring has shown similar limited use of emoticons in ensuing months.

SEMOIS-L

General Description of the List

The discussion list SEMIOS-L (Visual and Verbal Semiotics) was formerly known as TELES-L. The discussion focuses on issues related to semiotics, verbal and nonverbal communication, language behavior, visual issues, and linguistics. The list is moderated and archived monthly at the listserv in Louisville, Kentucky. Data from May, June, and July were selected due to availability and close approximation to the time period examined from the AECT-L.

Frequency, Variety, and Users

During the months of May, June, and July, 134 messages were sent on SEMIOS-L. Only one of these messages (.75%) was an emoticon message. This message contained two visual cues, a happy face, :) , and a sad face, :(. The extremely limited use of emoticons in SEMOIS-L was verified by spot checks during other months.

TRDEV-L

General Description of the List

The Training and Development Discussions (TRDEV-L) electronic list focuses on issues regarding the training and development of human resources. The list is moderated and archived monthly at a Pennsylvania State University listserv. The list is intended to stimulate collaboration and assistance in research, training, and development for academic and professional communities.

Frequency, Variety, and Users

Messages appearing on TRDEV-L were analyzed for frequency and variety of emoticons during the months of April, May, June, and July, 1994. During April, 100 messages were sent, none of which contained emoticons. May messages totaled 134. One message (.75%) contained two emoticons, a sad face, :(, and a happy face, :) . In June, 111 messages were sent, seven (6.30%) of which contained at least one emoticon. These seven emoticons were generated by four people. One of these messages contained three emoticons, the greatest number found in any message analyzed: two 8-) and one :-).

On June 30, one of the TRDEV-L members spontaneously posted an emoticon dictionary. To ascertain any immediate effects of the dictionary on the variety and frequency of emoticon use, messages from the month of July were analyzed. During July, a total of 144 messages were sent, 7 of which (4.86%) contained one emoticon each. These messages were sent by five different individuals and were common emoticons evidenced in earlier messages.

USENET

General Description

As a comparison to the academic discussion lists examined earlier, a brief review of e-mail messages appearing in the USENET was conducted. USENET is a set of newsgroups which predates the Internet. The news groups are organized hierarchically into broad, major categories which are divided into subgroups. The seven major news categories are computer science and related topics (comp.), the news network and software (news.), recreational activities and hobbies (rec.), scientific research and applications (sci.), social issues (soc.), debate on controversial issues (talk.), and everything else (misc.) (Krol, 1992).

Frequency, Variety, and Users

For this study, messages in the major categories of recreational activities and social issues were reviewed. These categories were chosen because the authors suspected that the nature of the communications would be less formal than those found in the academic listservs or some of the other USENET categories. In the recreation category (rec.), topic areas include backcountry, pets, guns, arts, antiques, autos, games, humor, and similar groups. The social (soc.) topics include religion, culture, history, college, and others.

The examination of data included 60 randomly selected messages sent during the month of September. Of those 60 messages, 15 messages included emoticons (25%). These 15 messages included 11 different emoticons; only the two traditional smiley faces, :-) and :) , and the winking face, ;-) , were repeated.

Emoticons from all data sources are included in Figure 8.

Although the reasons are unclear, it does appear that messages appearing in USENET contained a greater frequency and variety of emoticons than messages found in either the required or voluntary listservs discussed above. Spinuzzi (1992) found that the range of emoticon use on the USENET newsgroups varied from 0 to 25 percent and averaged about 11 per cent of the total postings. Data collected in the present study supports Spinuzzi's findings.

Issues and Observations for Further Investigation

Emoticons are important to understand as possible sources of visual cues for use in electronic environments, but this research only begins to investigate the queries posed as initial questions underlying the current study. Preliminary patterns emerging from the data collected, possible assumptions and attributions, and emerging issues for further research are related to four major questions listed below.

1) *With what frequency do emoticons appear in selected examples of electronic communication?*

- The use of emoticons presently does not appear to be a high-use element of e-mail communications in the data sources chosen. Emoticon use in this study ranged from 0% to 25% depending upon the time period and the source of message traffic.
- In the *Globaled '93* listserv, the higher the volume of traffic, the more likely emoticons would appear. However, this tendency did not hold for other data sources.

- Introduction of the emoticon dictionary in *Globaled '93* precipitated both verbal comments and the more frequent and varied use of emoticons. Apparently, the distribution of the emoticon dictionary did not appreciably affect the frequency or variety of emoticon use in the TRDEV-L forum. This observation may be accounted for by individual user characteristics, the nature of the discussion group, and novelty effects.

2) *What variety of emoticons appear in these same CMC data sources?*

- A symbol that has little or no meaning within a given community is not likely to be highly used. Though a variety of emoticons may reflect individual creativity, high frequency emoticons are most likely the ones that are best understood, hence variety may be limited. Many of the more "creative" emoticons have multiple meanings and are difficult to interpret, and some users provided verbal explanations of their visual cues. The range of variety seen in this study is shown in Figure 8.

- Individual preference and creativity appear to influence the development of new emoticons, the use of emoticons, and the context within which emoticons are interpreted. Spinuzzi (1992) has suggested that users both understand and use a limited number of emoticons and that emoticon interpretation is highly contextual.

3) *What usage patterns begin to emerge regarding the use of emoticons as visual cues?*

- The use of emoticons is most likely an individual characteristic perhaps influenced by peer modeling.

- The use of emoticons may be a persistent characteristic of given individuals.

4) *What factors may influence the use of emoticons used in electronic communication?*

- Multiple factors may be at work in the use of emoticons as a nonverbal and visual communication form. Some of these factors appear to be 1) level of communication formality, 2) cohesion of the communicating group, 3) age 4) gender, 5) difficulty of icon reproduction, 6) commonality of meaning, and 7) personal preference and experience. Each of these factors deserves additional study.

Summary

Emoticons are being integrated into electronic communication as a means of supplying visual cues in textual messages. Preliminary observations indicate that the use of emoticons appears to be a highly personal decision and is not yet wide spread among CMC users. Though much remains unknown about the use of emoticons, numerous opportunities exist for investigating the use of these visual cues in electronic communication.

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